

REMARKS

Applicants gratefully acknowledge the withdrawal of the rejection of the claims under 35 U.S.C. 112, second paragraph. The Examiner's understanding of the phrases "index range" and "containing urethane groups and predominately isocyanurate groups" is correct.

Claims 3-9 were rejected under 35 U.S.C. 102(e) as anticipated by, or in the alternative, under 35 U.S.C. 103 as being unpatentable over the Volkert ('933) reference and the Volkert et al references ('956 and '534).

The Volkert et al references ('956 and '534) disclose a process for the production of plastic foams. The '534 reference is a divisional of the '956 reference, and thus, the disclosure of these two references is identical except for the claims. Applicants respectfully submit that these references are not particularly relevant to the presently claimed invention. The blowing agents disclosed by both the '956 and '534 references clearly require at least one vinylfluoroalkane corresponding to a general formula (column 4, lines 50-62; column 5, lines 10-20; column 10, line 27 through column 11, line 8). By comparison, the blowing agents of the presently claimed invention consists essentially of C₁ to C₆ hydrocarbons. Vinylfluoroalkanes are not required by the presently claimed invention. In fact, the present claim language excludes the addition of such compounds to the presently claimed process. Applicants respectfully submit that these references clearly fail to describe the presently claimed invention with the specificity of an anticipatory reference.

The Volkert reference ('933) discloses a process for the preparation of polyurethane rigid foams having a low thermal conductivity. This reference does not properly anticipate the presently claimed invention. It is well established that the proper standard of anticipation is one of strict identity. For a reference to properly anticipate a claimed invention, it is essential that following the disclosure of the reference inevitably produce the claimed invention. Applicants respectfully submit that following the disclosure of the '933 reference does not inevitably result in the presently claimed invention.

The presently claimed process comprises reacting 1) polyisocyanates, with 2) from 30 to 90 parts by weight of isocyanate-reactive compounds having a

functionality of at least two and molecular weights of from 400 to 10,000 and containing branched chains, in the presence of 3) blowing agents consisting essentially of C₁ to C₆ hydrocarbons, 4) from 10 to 60 parts by weight of flameproofing agents, and 5) from 10 to 20 parts by weight of compounds containing at least two isocyanate-reactive hydrogen atoms and having molecular weights of from 32 to 399, with the reaction being conducted at an index range of from 200 to 600. By comparison, the '933 reference discloses reacting polyisocyanates with at least one higher molecular weight compound having at least two reactive hydrogen atoms, lower molecular weight chain extending agents and/or crosslinking agents in the presence of blowing agents, catalysts, and optionally additives.

Applicants respectfully submit that the skilled artisan must pick and choose from the broad disclosure of this reference to "arrive at" the presently claimed invention. Flameproofing agents are broadly disclosed by the '933 patent (column 10, lines 21 and 64-68). However, these are clearly optional additives and are not essential to the invention of the '933 patent. Furthermore, this reference does not require that polyols containing branched chains be used in the formulation. Although it may be possible to select the various components of the present invention from the broad disclosure of this reference, it is clear that there are many choices to be made from reading this reference. Applicants respectfully submit that the '933 reference simply does not describe the presently claimed invention with the specificity of an anticipatory reference. The withdrawal of the rejection of the present claims under 35 U.S.C. 102(e) is requested.

In addition to the above, Applicants respectfully submit that there is no information set forth in the '956 and '534 reference which suggests the use of hydrocarbons alone to one of ordinary skill in the art. According to the disclosure of the '956 patent at column 11, lines 3-38, it is possible that the vinylfluoroalkane of the specified formula may be used as a mixture with a physical blowing agent or a chemical blowing agent. These include alkanes, cycloalkanes, linear or cyclic, saturated or olefinically unsaturated ethers having 2 to 5 carbon atoms, aliphatic carboxylic acid esters, partially halogenated chlorofluorocarbons, partially

fluorinated or perfluorinated tertiary alkylamines, partially fluorinated or perfluorinated, linear or cyclic ethers, and partially fluorinated or perfluorinated, aliphatic or cycloaliphatic hydrocarbons. Preferably, the second blowing agent is selected from partially fluorinated or perfluorinated, aliphatic or cycloaliphatic hydrocarbons (column 12, lines 20-51). However, there is absolutely no suggestion to use only pure hydrocarbons as blowing agents as required by the presently claimed invention.

As set forth above, it is Applicants' position that use of the claim language "consisting essentially of" with regard to the use of C₁ to C₆ hydrocarbons as blowing agents excludes the use of any fluorinated compound such as the vinylfluoroalkane required by the Volkert et al references ('956 and '534). Also, there is no explanation by the Examiner as to why the skilled artisan would be motivated to alter the blowing agents required by these references. Applicants respectfully submit that these references clearly do not provide the necessary motivation to one of ordinary skill in the art to make the changes to "arrive at" the presently claimed invention. The presently claimed invention is simply not suggested by the '956 and '534 references.

Applicants respectfully submit that the presently claimed invention is not rendered obvious by the Volkert reference ('933). The presently claimed invention clearly requires that the reaction be conducted at an isocyanate index of from 200 to 600. This, however, is not disclosed or suggested by the '933 reference. All of the working examples of the '933 patent are at an isocyanate index of about 110, which is considerably lower than what is required for the presently claimed process.

The presently claimed process also requires that certain quantities of the high molecular weight isocyanate-reactive component, the low molecular weight crosslinking agents and the flameproofing agents be used. The '933 reference is completely silent in this regard. Applicants respectfully submit that one of ordinary skill in the art has no guidance or insight into these particular aspects of the presently claimed process upon reading the '933 patent. It is irrelevant that it may be "obvious to try" various quantities of reactants and various isocyanate index


ranges, as this is not the appropriate standard to be used in determining the obviousness of claims under 35 U.S.C. 103.

Furthermore, the specified isocyanate index range of 200 to 600 and the particular quantities of components provide rigid foams exhibiting improved dimensional stability and which undergo less shrinkage than the prior art foams. This is fully supported by the working examples of the present application. Table 1 on page 11 demonstrates the importance in selecting branched components to add dimensional stability, even when the NCO index is within the presently required range. In Table 2 on page 12, examples 1-4 are representative of the presently claimed invention and example 5 is comparative. These examples support Applicants' position that the presently required NCO index results in improved dimensional stability of the final foamed product. One of ordinary skill in the art could not expect this improvement upon reading the '933 reference. Thus, the presently claimed invention is not obvious in view of the '933 patent.

Applicants respectfully request that each of these rejections be withdrawn. The allowance of Claims 3-9 is respectfully requested.

Respectfully submitted,

ROLF WIEDERMANN
STEPHAN WENDEL
WOLFGANG SCHMITZ

By 
N. Denise Brown
Agent for Applicants
Reg. No. 36,097

Bayer Corporation
100 Bayer Road
Pittsburgh, Pennsylvania 15205-9741
April 4, 1996
(412) 777-2390
FACSIMILE PHONE NUMBER:
(412) 777-5449
s:\bsh\db0339